REMARKS

Present Status of the Application

The Office Action mailed on February 2, 2004, rejected claims 1-3. Specifically, the Office Action rejected claims 1-3 under 35 U.S.C. 103(a), as being unpatentable over JP H04-313647 (Watanabe). No claim is amended in this response and claims 1-3 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Office Action Rejections

Claims 1-3 have been rejected under 35 U.S.C. 103(a) as being patentable over JP H04-313647 (Watanabe) in view of U.S. Pat. No. 4,262,492. The Examiner alleged that Watanabe has disclosed most claimed features of claim 1 of the present invention except for the rotation type compressor and the CO_2 refrigerant (claim 3). Applicants respectfully disagree this rejection and its interpretations for at least reasons set as follows.

The present invention is different from the Watanabe reference in the intermediate cooling loop. Watababe fails to disclose the requisite features as claimed in the present invention.

According to the Watanabe reference, the bypass pipe 6 is connected between the gas-liquid separator 4 and the absorption side of the second compression section 1b, through which the gas separated by the gas-liquid separator 4 passes. The gas-liquid separator 4 will separate the gas and liquid in the refrigerant from each other. Then, the bypass pipe 6 is used to conduct the separated gas to the absorption side of the second compression section 1b, and the liquid is transported to the evaporator 5. However, in this configuration, the liquid may be transported to the second compression section 1b to cause a liquid compression to damage the compressor. Therefore, in the Watanabe reference, a two-way valve is arranged in the bypass pipe 6 to control the open and close of the bypass pipe 6. In this way, liquid refrigerant can be prevented from entering the second compression section 1b.

In contrast, claim 1 recites:

> . . .
>
> *an intermediate cooling circuit for radiating heat of the refrigerant discharged from the first rotary compression element; and*
>
> *a valve device for opening a passage of the intermediate cooling circuit during the cooling operation*

First, the intermediate cooling circuit functions in a different manner from the Watanabe reference. In addition, the present invention has no gas-liquid separator, and therefore, the basic structure is completely different. Further, the Watanabe reference also fails to disclose "***valve device for opening a passage of the intermediate cooling circuit during the cooling operation***".

According to the Watanabe reference, the two-way is controlled to open and close according to a temperature difference between the room temperature and the setting temperature. When the room temperature approximates the setting temperature and the compressor stops, the two-way valve 7 is closed. As the difference between the room temperature and the setting temperature occurs and the compressor restarts, the pressure in the gas-liquid separator changes dramatically and thus foaming is created. At this time, the foaming enters bypass pipe 6. However, since the valve 7 closes the bypass pipe 6, the liquid refrigerant will not flow into the second compression section 1b. Then, after the foaming is formed for a predetermined time, the valve 7 is opened again. See paragraph [0016].

Paragraph [0018] shows another mechanism to control the valve 7 according to the level of the gas-liquid separator 4. Therefore, the two-way valve 7 is different from the claimed *valve device for opening a passage of the intermediate cooling circuit during the cooling operation.*

For at least the reasons set out above, the Watanabe reference fails to disclose the basic structure of claim 1 of the present invention. Therefore, even though one modifies the Watanabe's structure from the teachings of Morita and Fuji, the modified combination still fails to disclose the claimed features in claim 1 of the present invention.

For at least the foregoing reasons, Applicant respectfully submits that independent claim 1 patently defines over the prior art, and should be allowed. For at least the same reasons, dependent claims 2-3 define over the prior art as well.

The prior art made of record, but not relied upon, is not deemed to affect the patentability of the presently claimed invention.

CONCLUSION

For at least the foregoing reasons, it is believe that all pending claims1-3 are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is hereby invited to telephone the undersigned counsel to arrange for such a conference.

Respectfully submitted,

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Registration No.

J.C. Patents, Inc.
4 Venture, Suite 250
Irvine, CA 92618
Tel.: (949) 660-0761
Fax : (949) 660-0809